

**REMARKS**

Claim 1-2 and 8-16 are pending, claims 3-7 having been withdrawn. By this Amendment, claim 13 is amended.

On August 18, 2004 an interview was conducted between the Examiner and Applicants' representative, Mr. Zibelli. The applied references were discussed, as well as the proposed amendment to claim 13. The following arguments were also presented.

The Office Action rejects claim 12 under 35 U.S.C. § 112. It is respectfully submitted that the amendment to claim 12 obviates this rejection.

The Office Action rejects claims 1-2, 12-13 and 15-16 under 35 U.S.C. § 103 over Yokosawa (USP 6,001,479) in view of Ootake (USP 5,958,542) and Veersamy (USP 6,303,225). This rejection is respectfully traversed.

Yokosawa discloses a liquid lubricant layer and a DLC protective layer, but it does not disclose a functional group containing nitrogen in DLC. Further, Yokosawa does not disclose the proportion of the functional groups containing N per 100-carbon atoms, as admitted in the Office Action.

The Office Action asserts that Ootake discloses a DLC film containing from 10-35 atomic % N or H, and that it would have been obvious to apply this teaching to Yokosawa. However, it is respectfully asserted that even if combined, as suggested, the resulting combination would not include a diamond-like protective coating with a proportion of functional groups having N atoms per 100 carbon atoms exceeding 20% as required by the claims. Instead, the resulting combination

includes a DLC layer having nitrogen with 10-35%, but will not result in a diamond-like protective coating with a proportion of functional groups having N atoms per 100 carbon atoms exceeding 20%.

The Office Action asserts that Veerasamy includes evidence that doping a D.C. film with nitrogen results in the formation of  $\text{NH}_2$  reactive groups on the surface of the film. The Office Action then takes the position that this teaching somehow will result in the D.C. film of Yokosawa as modified by Ootake will have 35  $\text{NH}_2$  groups per 100 carbon atoms. However, it is submitted that one of skill in the art would not apply the teachings of Veersamy to Ootake as suggested. Specifically, nitrogen in the DLC layer is formed by sputtering in Ootake. Such sputtering cannot create amine  $\text{NH}_2$  functional groups as suggested in the Office Action. Attached hereto is the declaration of Dr. Hiroyuki Suzuki. Dr. Suzuki points out that sputtering cannot create amine  $\text{NH}_2$  functional groups in paragraphs 3-5 of his declaration.

Dr. Suzuki further points out that the teachings of Veersamy are inapplicable to the teachings of Ootake, and in particular, that sputtering and doping are very different processes, where a percentage of an atom in one cannot be simply achieved by the other. One process is used to form a layer, while the other adds dopants in a layer that has already been made.

Even if doping as in Veerasamy is conducted after a layer is made by sputtering as in Ootake, it should not cause the proportion of functional groups containing N in DLC to exceed 20%, because the proportion of functional groups containing N in DLC will only be caused by doping as in Veerasamy and will not be affected by the sputtered layer containing nitrogen as in Ootake. As such, even if combined, the combination will not result in the claimed invention.

Further, it is well known in the art that sputtering can cause a high proportion rate, but that from doping it is very difficult to achieve a high proportion rate. Thus, one of skill in the art would not combine the teachings as suggested.

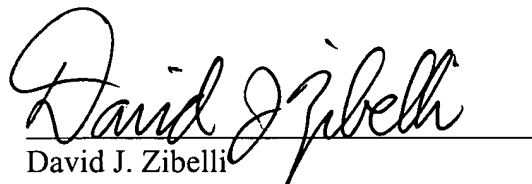
For the above reasons, it is submitted that a *prima facie* case of obviousness has not been presented. Withdrawal of the rejection is requested.

For at least the above reasons, it is submitted that the application is in condition for allowance. Prompt consideration and allowance are solicited.

The Office is authorized to charge any fees due under 37 C.F.R. §§ 1.16 or 1.17 to Deposit Account No. 11-0600.

Should there be any questions, the Examiner is invited to contact Applicants' undersigned attorney.

Respectfully submitted,

  
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Attachment: Declaration of Dr. Hiroyuki Suzuki